Research Article

Valentine J. Owan*, Rosemary O. Osim, James U. Liwhuliwhe, Glory E. Edoho, Deborah B. Onabe, Inah O. Ibor, Mercy V. Owan

Principals' Demographic Qualities and the Misuse of School Material Capital in Secondary Schools

https://doi.org/10.1515/edu-2024-0009
received September 27, 2021; accepted April 14, 2024

Abstract: Previous studies tend to not only assess principals' demographic variables but also use other dependent variables, such as administrative effectiveness, job performance, and student achievement. In the literature, principals' demographic qualities and the misuse of material capital have been under-assessed. This study used a quantitative approach to investigate the demographic attributes of principals and the abuse of school material capital in secondary schools. Using a questionnaire, data were gathered from 667 secondary school administrators in Cross River State, Nigeria. The findings revealed significant differences in the misuse of school material capital by principals of different ages, professional qualifications, and years of experience. However, major disparities between male and female principals were not identified. More specifically, principals who were older, seasoned, and possessed bachelor's and Master of Education degrees were efficient managers of school material capital. A high rate of misuse was found among principals who were younger and inexperienced than their counterparts who were young, less experienced, and possessed a postgraduate diploma in education, as well as other professional academic qualifications unrelated to the field of education (e.g., HND, BSc, BA, and MSc). Based on these findings, key implications for quality service delivery and administrative effectiveness were discussed.

Keywords: age, demographic characteristics, educational wastage, school leadership, school resources, sex

*** Corresponding author: Valentine J. Owan**, Department of Educational Foundations, University of Calabar, Calabar, Nigeria; Ultimate Research Network (URN), Calabar, Cross River State, Nigeria, e-mail: owanvalentine@gmail.com
Rosemary O. Osim: Department of Educational Management, University of Calabar, Calabar, Nigeria, e-mail: rosemaryosim@gmail.com
James U. Liwhuliwhe: Department of Economics, University of Calabar, Calabar, Nigeria; Ultimate Research Network (URN), Calabar, Cross River State, Nigeria, e-mail: liwhuliwhejames@unical.edu.ng
Glory E. Edoho: Department of Continuing Education, University of Calabar, Calabar, Nigeria, e-mail: gloryedoho80@gmail.com
Deborah B. Onabe: Department of Educational Management, University of Calabar, Calabar, Nigeria, e-mail: deborahonabe17@gmail.com
Inah O. Ibor: Department of Educational Management, University of Calabar, Calabar, Nigeria, e-mail: inahoffor@gmail.com
Mercy V. Owan: Department of Educational Management, University of Calabar, Calabar, Nigeria; Ultimate Research Network (URN), Calabar, Cross River State, Nigeria, e-mail: mercyvarcy@gmail.com

1 Introduction

The duty of every secondary school principal is to ensure that educational programmes in schools are implemented. School principals also ensure the availability of appropriate school equipment and infrastructure, maintain academic records (both legislative and nonlegislative), and provide a friendly teaching and learning environment in schools (Arop, Owan, & Agunwa, 2019; Madukwe, Owan, & Nwannunu, 2019). The tasks of the head of the school are summed up in five areas – education programme formulation and execution, employee capacity building, student relations, communal relations, and financial management (Brauckmann-Sajkiewicz & Pashiardis, 2022). In addition, the surveillance of the teaching-learning process, decision-making, dispute settlement, coordination, recordkeeping, fund control, plant maintenance, public relations, and compliance with legal requirements are all important areas of school administration on which the principal must work (Owan, 2018). This submission implies that secondary school principals manage human and material capital.

School material capital refers to fixed or mobile items, appliances, supplies, and infrastructure that could be private, public, or government assets that can be converted into educational use to produce outcomes (Shanka & Adebola, 2021). Material capital includes libraries, electronic, and audiovisual educational materials (such as computers, Internet access, broadcast media), textbooks, sickbays, maps, lecture theatres, charts, auditoriums, classrooms, laboratories, and financial and time resources, among others (Mbon, Omorobi, Owan, & Ekpenyong, 2019). Furthermore, material capital can be

Open Access. © 2024 the author(s), published by De Gruyter. This work is licensed under the Creative Commons Attribution 4.0 International License.

classified into printed, displayable, and consumable materials (Usman, 2016); land, farms, houses, appliances, tools, machines, automobiles, power, and water supplies are examples of physical resources; and school records and instructional resources are examples of educational resources. Therefore, there is a need for school material capital to be effectively managed. The accurate and productive allocation of an organisation's resources where they are needed is material resource management.

School material resources remain very instrumental in enhancing secondary school system effectiveness (Haleem, Javaid, Qadri, & Suman, 2022). Even though education aims at improving the intellect, personality, expertise, and capabilities of future people to be fitted for modern life, school material supplies must be provided in sufficient quantities and adequately and efficiently handled, monitored, and overseen (Owan, Asuquo, & Etudor-Eyo, 2022). The role of top leaders and academic and non-academic staff is to manage the available material capital of the school. In addition, if the principal's administrative dexterity does not provide enough material resources or quality at appropriate hours, the school curriculum will not be realistic or accessible (Uko & Ayuk, 2014).

Naturally, school resources are scarce and may have alternative uses such as providing other socioeconomic activities to boost citizens' social welfare. Therefore, it is only rational that such scarce resources are not wasted. Hence, for effective management of school material capital, there should be a low rate of wastefulness among school officials. The waste of school material resources results from complete or partial destruction, overutilisation, and underutilisation of materials available in the school (Mbon et al., 2020). "When materials supplied to schools are left to be destroyed by either man, animals, insects, or other biological processes, without serving the need for which they were provided, it is seen as school material resource wastage" (Mbon et al., 2020, p. 266). The present study builds on the research that revealed a high rate of misuse of school material resources in secondary schools (Mbon et al., 2020). The services and resources offered by the government and other related stakeholders for implementing education projects in Nigeria are insufficient and inconsistent, as shown by the repeated depletion of such assets (Jayesimi, 2020; Offem, 2021).

School materials such as textbooks, chalks, charts, markers, chalk/whiteboards, workbooks, drawing books, computers, desks, handbooks, manuals, laboratories, libraries, playgrounds, and projectors are misused at rates of 6.65, 6.66, 6.69, 6.63, 6.65, 6.71, 6.68, 6.61, 6.72, 6.63, 6.73, 6.66, 6.64, 6.67, and 6.68%, respectively (Mbon et al., 2020). This information suggests that these resources and, perhaps, others not captured in the evidence are inadequate for serving the purposes for which they were provided. The study by Mbon et al. did not explain why these resources were misused. However, one thing is certain: misusing these teaching materials affects the quality of instructions from teachers to students (Usman, 2016). This approach has taken a long way to influence teachers' effectiveness, students' performance, and the overall effectiveness of schools (Bassey, Owan, & Eze, 2019). Demographic qualities are assumed to be essential for principals to operate efficiently and effectively. In the performance of duties, demographic variables of managers, such as age, sex, educational qualifications, expertise, and marital status, might be beneficial or detrimental (Owan et al., 2022). It has also been argued that principals' demographic variables impact how they utilise material resources in secondary schools (Jang & Alexander, 2022; Owan, Ekpenyong, & Asuquo, 2021).

Utilisation and misuse are not the same. Therefore, the information in the literature on the impact of the characteristics of principals on the use of information and communication technology (ICT) instruments (Odigwe & Owan, 2020) and other material capital says nothing about misuse. This research is also motivated by the fact that considerations such as the principal's age, training, sex, and background have been taken into account when nominating teachers to principalship positions under the assumption that such attributes would cause some prospective principals to work more successfully and efficiently than others (Campos-García & Zúñiga-Vicente, 2022).

The variation also explains why secondary schools might not have a universal misuse rate. In other words, some principals may not misuse resources, and the rate may not be the same even among those who waste resources. Thus, it is important to determine which categories of principals are likely to waste resources. Interestingly, the study may show some exciting patterns in the distribution of misuse across principals with varied characteristics. Based on this context, this research aimed to investigate how demographic factors (such as age, sex, professional education, and experience) affect the misuse of material capital in secondary schools.

2 Principals' Age

An extensive body of research shows that a leader's age is connected to their administrative success (Ali, Li, Khan, Shah, & Ullah, 2021; Kandade, Samara, Parada, & Dawson, 2021; Schiuma, Schettini, Santarsiero, & Carlucci, 2022). For instance, it has been discovered that leaders in their fifties

have superior administration abilities than those below their fifties, maintaining that people can generally constantly divide into complex functions until they mature (Campos-García & Zúñiga-Vicente, 2020). The finding was reinforced by other studies that revealed a favourable association between efficiency and the age of principals (Kalkan, Altınay Aksal, Altınay Gazi, Atasoy, & Dağlı, 2020; Onubuleze, 2018). Older school leaders are more viable than younger administrators. Findings from the study revealed a weak positive correlation between age and principals' administrative effectiveness (Karakose, Yirci, & Papadakis, 2021). Because of the focus on demographic factors as predictors of the institutional success of principals, this concerns the present research.

Other studies revealed that age significantly influenced principals' job performance and recommended that age be considered when appointing schools' principals (Mukinya, 2013; Tonich, 2021). These studies did not specify the age categories with a higher performance rate or recommend what age classes of principals policymakers should recruit for quality service delivery. Another study documented that principals of various ages demonstrated small differences in their self-reported gaps in knowledge and administrative performance; more specifically, principals who are 61 years or older tend to exhibit better leadership behaviour than principals between 31–40 years, 51–60 years, and 41–50 years in that order (Tu, 2019).

Another study showed that there is no major age gap in the usage of internet resources for school administration; a higher rate of utilisation of internet tools was recorded for principals aged 33–47 years, followed by those aged 48–52 years, 18–32 years, and those aged 53 years and older (Uko, Mbon, Okon, Ebuara, & Arop, 2020). However, another study revealed a significant negative association between principals' age and ICT integration (Mutisya, Mulwa, & Mwania, 2017). The results of Mutisya imply that as principals age, the capacity for integrating ICT resources into the school system decreases.

From the works cited, there is a scholarly dispute on the impact of sex on principals' successful discharge of managerial roles, encouraging additional studies to be carried out to clarify these differences. Furthermore, it is quite convincing that numerous studies exist on principals' age concerning other variables, such as administrative effectiveness and utilisation of ICT tools and internet resources. None of the previous studies has connected principals' age to the misuse of school material capital at the secondary education level. This gap means this research was meant to fill a knowledge vacuum in the literature.

3 Sex of the Principals

Principals' sex has been documented to have a weak inverse relationship with occupational maladjustment and performance (Herbst, 2020). That is, as sex varies, occupational maladjustment and marital dysfunction increase or decrease. As a result, sex variations show how they respond to clerk employees' new jobs and success in terms of the marriage role. While men are better adjusted maritally, women are better adapted in the workplace. Research has shown, among other things, that male and female leaders significantly varied as they exercised their supervisory duties. In contrast, men's managerial capability in the administration of secondary schools does not vary significantly between directors and women (Saleem, Aslam, Yin, & Rao, 2020).

Another survey also revealed essential ties between principals' sex and the accomplishment of secondary school management tasks (Onubuleze, 2018). A recent report showed that only professionally experienced female managers are linked to greater quality of management, confirming the existence of obstacles to female progression (Martínez, Molina-López, & de Cabo, 2020). Another study revealed that sex disparities in principals' educational leadership depend on the source of power and the fostering of educational leadership through partnerships between principals and teachers (Shaked, Glanz, & Gross, 2018).

In contrast, Mukinya's (2013) study revealed that sex does not significantly affect principals' appraisal duties in Kenya. Another recent study showed that sex does not strongly influence principals' leadership behaviour (Tu, 2019). The findings of Tu were very close to those of a previous report, which showed that the sex of managers does not greatly influence the use of Internet resources for school administration. However, females demonstrated a higher utilisation rate (Uko et al., 2020). One other review found that introducing ICTs to managers of human resources had no major effect on sex differences (Abuga, 2014). The result suggests that male principals do not extensively differ from their female counterparts in using ICT tools to manage personnel.

Another study concluded that the sex of principal and ICT integration secondary education are closely associated (Mutisya et al., 2017). Similarly, it was revealed that principals' sex in public high schools had no significant effect on their implementation of discipline (Arop, 2018). It was also discovered that principals' sex does not significantly influence their strategic decision-making (Campos-García & Zúñiga-Vicente, 2020).

In general, the findings of the literature examined show different views on the effect of sex on the managerial

performance of principals. Certain studies have shown major effects, although others have shown opposite results; some studies have shown no variations in the organisational effectiveness of men or women. The debate among scholars calls for further research in this area, explaining one of the key reasons this variable was considered in this study.

4 Principals' Professional Qualifications

Professional qualification is required for practice at a high level in certain jobs or professions (Sullivan & Al Ariss, 2021). In Nigeria, specific academic credentials held by educators are deemed "professional" according to the National Policy on Education. These include the Nigeria Certificate in Education (NCE), Bachelor of Education Degree (BEd), Postgraduate Diploma in Education (PGDE), Master of Education Degree (MEd), and Doctoral Degree in Education (PhD). Nigerian colleges of education award the NCE and typically involve a 3-year programme to train future primary and junior secondary school teachers. It covers theoretical and practical courses related to teaching methods, educational psychology, curriculum development, classroom management, subject-specific pedagogy, and school teaching practice.

The BEd is an undergraduate programme pursued after high school. NCE holders can enter a 3-year degree programme if they seek further education. BEd graduates are often recruited for teaching positions at senior secondary levels. The programme offers a comprehensive understanding of educational theory, teaching methods, curriculum development, classroom management, and educational psychology, with practical teaching experiences included. Teachers with unrelated undergraduate degrees pursue careers in education after obtaining their first degree in science, arts, engineering, or business.

The PGDE is for individuals with unrelated degrees who want to gain teaching qualifications or specialise in education. It is typically a 1-year programme covering educational theory, curriculum design, teaching methods, assessment, and classroom management. The MEd allows individuals, usually holders of BEd or PGDE to deepen their knowledge in specific education areas like leadership, special education, curriculum development, or educational research.

A study showed that educational qualification significantly influences principals' overall resource management (Okwor, 2012). Likewise, other findings have shown that principals' education standards substantially impact their leadership performance (Feyisa, Ferede, & Amsale, 2016) and employee evaluation (Mukinya, 2013). A study indicated that principals with professional qualifications such as NCE, BEd, and MEd performed better in instructional leadership than did those without professional qualifications (such as BA/BSc), which was also significantly related to principals' instructional leadership (Walson, Hart, Ajikere, & Kasi, 2020).

A further review revealed no substantial association between the application of quality assurance principles and institutional efficacy, which was dependent on the principals' professional credentials (Momoh & Osagiobare, 2015). More recently, it was discovered that principals' level of education has a modest effect on their expertise in handling the procurement process in schools (Kirianki, 2017) and the incorporation of ICT into school management (Mutisya et al., 2017).

The findings of another survey showed an insignificant association between principals' professional credentials and principals' managerial expertise. Nevertheless, they suggested that principals fully use their administrative abilities and competencies to ensure the successful operation of their leadership positions, enhancing the academic quality of teaching and learning (Mohammed, EdU, & Etoh, 2020). Research undertaken by Ogunode (2023) showed that highly qualified managers fulfilled their positions better than non-professionals. This finding reinforced the findings of Phytanza and Burhaein (2020), who indicated that teachers who have completed a degree in education are more skilled in performance than those who have not. However, all the cited studies did not focus on misusing school material capital because of principals' educational or professional qualifications. Therefore, it would be interesting to discover the discrimination of misuse across principals of different educational qualification categories, a gap the present study purports to bridge.

5 Principals' Years of Experience

Some studies have widely acknowledged principals' years of experience as a significant factor affecting the extent of their administrative effectiveness (Lien, Khan, & Eid, 2023; Mukinya, 2013). It has been established that seasoned principals act from a broader and more advanced knowledge base because of their years of working experience (McHenry-Sorber, Campbell, & Sutherland, 2023). Their years of experience have provided them with robust forms and styles for successful administration, counselling, monitoring, and assessment of teachers under them (Graham, White, Cologon, & Pianta, 2020). Another study showed that principals' years of

experience had a significant relationship with students' academic achievement; specifically, schools administered by a principal with greater experience had the best results (Gümüş, Şükrü Bellibaş, Şen, & Hallinger, 2024).

However, there is a controversy in the literature regarding the effect of experience on administrative effectiveness. The results of Feyisa et al. (2016) indicated that principals' experience does not significantly correlate with their leadership effectiveness. Feyisa et al. tallied with the development of another study, which explained that principals with less experience demonstrated higher mean ratings in their leadership behaviour. However, the observed differences were not significant (Tu, 2019). Although one study found no substantial correlation between demographic features of occupational experiences and collaborative leadership and learning, behaviours and values were linked to context (Jeffers, 2013).

Furthermore, teachers regard better-trained and more seasoned principals positively (Gebczynski & Kutsyuruba, 2022). In 2017, Kirianki found that the experience of principals influences their expertise in procurement and that principals use their skills, knowledge, and expertise to improve their capacity in schools to carry out proper procurement. The outcome of another study showed that the years of experience of principals had a major impact on their implementation of instruction in public high schools (Arop, 2018). It was discovered that more seasoned administrators are less knowledge motivated in general than less experienced managers are; the more willing managers are to consolidate information into their assignments, the more educators put resources into the programmes, and experienced representatives continue to increase teacher buy-in at the school level (Yoon, 2016). A clear positive relationship between school managers' experience and ICT incorporation was recorded in another study (Mutisya et al., 2017).

6 The Present Study

Based on the literature review obtained and presented, there are still certain discrepancies that this research could fill. A thorough literature review shows that all the cited studies have not focused on principals' demographic qualities in misusing school material capital. Instead, previous studies have assessed principals' demographic variables and included other dependent variables, such as administrative effectiveness, job performance, and student achievement. Therefore, this report is the first effort to examine the role that principals' age, ethnicity, experience, and educational qualifications play in the misuse of material capital in secondary schools. Although most of the cited studies stemmed from Africa (mostly from Nigeria and Kenya), the inconclusive position of the findings on key aspects of school management places a public call for further investigations. Based on these few gaps, the present study provides answers to the following research questions:

1. What are the differences in the ages of principals concerning the misuse of school material capital in secondary schools?
2. To what extent do male principals differ from their female counterparts regarding the misuse of school material capital in secondary schools?
3. What is the rate at which principals with different professional qualifications misuse school material capital in secondary school?
4. To what extent can the school material resource misuse rate be attributed to discrimination in principals' years of experience?
5. What is the interactive effect of principals' demographic qualities on the misuse of school material capital in secondary schools?

7 Methods

7.1 Research Design and Participants

The research method adopted for this study was quantitative, with a specific focus on the causal-comparative design. The causal-comparative research design was preferred due to its suitability for enabling researchers to obtain data on phenomena that have already occurred. Thus, the researchers did not need to manipulate variables during the data collection. The study population included the entire Cross River State, Nigeria, and secondary school managers. According to data from the Department of Planning, Research and Statistics in Cross River State Ministry of Education, there are 271 public secondary schools and 667 educational managers (271 principals and 396 vice principals). A total of 667 school managers in Cross River State were considered manageable by the researchers. Hence, the census approach was used to analyse the entire population. A census approach is used when the population to be studied is small or considered manageable by the researchers (Adams, Khan, Raeside, & White, 2007; Kothari, 2004).

7.2 Instrumentation

The Wastage of School Material Resources Questionnaire (WSMRQ), developed earlier by Mbon et al. (2020), was

used primarily for data collection. The original version of the instrument has three subscales measuring the waste of school farm resources (14 items), the waste of school buildings (10 items), and the waste of teaching equipment (15 items). The instrument has a total of 39 items. However, not all the original questionnaire (WSMRQ) items were adapted in the revised version. The researchers purposively selected 50% of the total items in each of the three subscales of the original version as the modified version. The purposive approach promoted brevity by reducing the original scale length by half and assembling only items relevant to the present study. Thus, seven, five, and eight items were randomly selected from the waste of school farm resources, buildings, and teaching equipment, respectively, resulting in 20 items measuring the waste of school material capital.

Sample items for the misuse of school farm resources were as follows: *farm products in my school are sometimes damaged by rodents when they are gathered after harvest; outputs from farms are only shared among staff in the school for consumption purposes; sometimes farm produce are allowed to rotten while being stored for future purposes; funds derived from the sales of school farm resources are not used judiciously in running the school; farms in my school are operated as staff personal resource rather than a source of generating internal revenue for the school.* Sample items for the misuse of buildings are as follows: *some school buildings in my school are not used for any purpose; some school buildings are not used following their provisional prescriptions; some school buildings that are damaged are not usually repaired; school buildings are often re-painted whenever they are washed out; the number of students utilising some school buildings is beyond the carrying capacity specified.* For the misuse of teaching equipment, a list of teaching resources (such as textbooks, charts, computers, desks, laboratories, and libraries) was provided for respondents to tick, on a scale of five, the extent to which they considered each of the items as being over- or under-utilised.

There were also two parts of the updated prototype of the instrument. Section A was designed to collect respondents' demographic information. In contrast, section B was designed with 20 items organised into the revised four-point Likert scale of Strongly Agree, Agree, Disagree, and Strongly Disagree. A four-point scale was favoured for various reasons. Firstly, it aligns with Mbon et al.'s (2020) validated scale. Secondly, it offers simplicity and clarity to respondents, reducing confusion and improving response accuracy (Omrani, Wakefield-Scurr, Smith, & Brown, 2019). Thirdly, it simplifies data analysis, aiding interpretation and drawing meaningful conclusions (Owan et al., 2022; Petters et al., 2024). Surveys using this scale are completed faster, boosting response rates and data quality (Schanze, 2023). Moreover, the four-point scale has also been widely used in other studies (e.g., Ekpenyong, Owan, Ogar, & Undie, 2022; Owan et al., 2023; Peimanpak, Abdollahi, & Hosseinian, 2023).

7.3 Validity and Reliability

The validity and reliability of the instrument, previously established by Mbon et al., revealed a Cronbach's alpha index of 0.895. Notwithstanding the high reliability of the tool, the questionnaire items were further subjected to face and content validity by five experts (two experts in educational planning and three experts in psychometrics) at the University of Calabar, Nigeria. The responses from these experts were subjected to quantitative content validity. The item content validity indices (I-CVI) for the 20 items ranged from 0.79 to 0.92, while the scale content validity index (S-CVI) was 0.89 in terms of the relevance of the items and scale. Regarding the clarity of things, the I-CVIs ranged from 0.83 to 0.97, with an S-CVI value of 0.91. These values all met the threshold recommended by instrument validation studies (Rodrigues, Adachi, Beattie, & MacDermid, 2017; Shi, Mo, & Sun, 2012; Shrotryia & Dhanda, 2019) of a valid instrument that should be able to measure intended variables. The reliability assessment of the instrument's updated version yielded a Cronbach's alpha value of 0.887, implying that the instrument for data collection was internally consistent.

7.4 Data Collection and Analysis

Primary data were obtained from school managers by administering copies of the instrument. Cover letters were sent to schools in clusters based on education zone, from the Calabar Education Zone to Ikom and the Ogoja Education Zone. After obtaining permission and consent from the institutional heads to voluntarily participate in the study, physical visits were made to each school. With six trained research assistants, the data collection exercise was completed in 3 months, with each education session taking 1 month. After this stage, all completed copies of the instrument were retrieved for prepping, coding, and statistical analysis. There was a 100% response rate, as the researchers received all the administered copies filled properly without any errors or missing data. After data preparation, scoring, and coding, the coded data were explored to check for outliers and perform the normality test. Although there were no outliers, the dataset failed all the normality tests (Table 1).

As shown in Table 1, all variables with p values less than the 0.05 alpha level were considered not normally

distributed. Thus, it can be inferred that the data were not normally distributed across all the principals' sex or years of experience. The data were not normally distributed for almost all principals' age or educational qualification categories except for 45–49 years and MEd. The trend of normality was the same for the Q–Q plots, box plots, and histograms; however, for space reasons, the charts for these normality tests are not presented. Failing the normality test means that parametric tests are unsuitable for application to the data of this study. Consequently, the researchers employed nonparametric statistical methods (such as the Mann–Whitney U and Kruskal–Wallis tests) to test the null hypotheses at the 0.05 alpha. A univariate general linear model was used to test for the interaction effects of two pairs of independent variables on the misuse of school material capital.

8 Results

8.1 Demographic Characteristics of Study Participants

The demographic characteristics of the respondents of this study are provided in this section. Table 2 reveals that 83.8% (n = 559) of the respondents in this study were males and 16.2% (n = 108) were females. Most of the respondents (n = 173, 25.9%) were younger than 40 years, 24.4% (n = 163) were between 40 and 44 years, 25% (n = 167) were between 45 and 49 years, and 24.6% (n = 164) were 50 years or older. Most of the respondents (n = 275, 41.23%) held a first degree but were from fields unrelated to education; 34.93% (n = 233) of the respondents had a Bachelor of Education Degree (BEd). Table 2 further shows that principals with postgraduate degrees (such as a Postgraduate Diploma in Education [PGDE] or a Master's Degree in Education [MEd]) are 159 (23.84%). Most of the respondents (48.6%, n = 324) had more than 25 years of work experience, 25.6% (n = 171) had less than 15 years of work experience, and 25.8% (n = 172) had between 15 and 24 years of work experience.

8.2 Age and the Misuse of School Material Capital

The analysis of the age differences of principals concerning the misuse of school material capital in secondary schools was performed. The aim was to test the null hypothesis that the distribution of the misuse of school material capital is the same across the four categories of principal age. A Kruskal–Walli's test showed that principals' age significantly influenced the misuse of school material capital in secondary school, H(3) = 259.18, p = 0.00. Principals who were less than 40 years (n = 173, Mdn = 69.00, mean rank = 473.01) misused school material resources more than did those between 40 and 44 years (n = 163, Mdn = 59.00, mean rank = 414.71), those between 45 and 49 years (n = 167, Mdn = 44.00, mean rank = 276.97), or those 50 years and above (n = 164, Mdn = 30.00, mean rank = 165.22). Taking the total mean rank value of 322.48 as the criterion, the results indicated that principals who were less than 40 years old and between

Table 1: Normality test results using the Shapiro–Wilk and Kolmogorov–Smirnov tests for the dataset associated with this study

Independent variables	Levels	Normality test					
		Kolmogorov–Smirnov[a]			Shapiro–Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
Principals' sex	Male	0.073	559	0.000	0.952	559	0.000
	Female	0.081	108	0.081	0.950	108	0.000
Principals' age	Less than 40 years	0.198	173	0.000	0.853	173	0.000
	40–44 years	0.119	163	0.000	0.947	163	0.000
	45–49 years	0.052	167	0.200*	0.991	167	0.336
	50 years+	0.182	164	0.000	0.815	164	0.000
Principals' professional qualification	Others	0.199	171	0.000	0.851	171	0.000
	PGDE	0.120	158	0.000	0.944	158	0.000
	MEd	0.051	158	0.200*	0.992	158	0.502
	BEd	0.169	180	0.000	0.835	180	0.000
Principals' years of experience	Less than 15 years	0.199	171	0.000	0.853	171	0.000
	15–24 years	0.117	172	0.000	0.954	172	0.000
	25 years+	0.094	324	0.000	0.948	324	0.000

Table 2: Demographic characteristics of the respondents

Demographic characteristic	Levels	Frequency	%
Sex	Male	559	83.80
	Female	108	16.20
	Total	667	100.00
Age group	<40 years	173	25.90
	40–44 years	163	24.40
	45–49 years	167	25.00
	50+ years	164	24.60
	Total	667	99.90
Education level	Bachelor of Education (BEd)	233	34.93
	First degree (unrelated)	275	41.23
	PGDE/MEd	159	23.84
	Total	667	100
Work experience	<15 years	171	25.6
	15–24 years	172	25.8
	>25 years	324	48.6
	Total	667	100

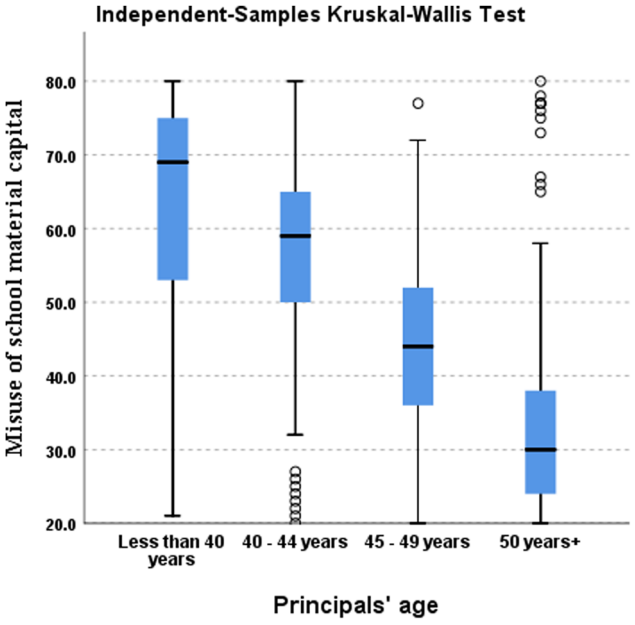

Figure 1: Box plot of the misuse of school material capital by principal age.

40 and 44 years old misused school material capital to a high extent, while those between 45 and 49 years old as well as 50 years and above misused school material capital to a low extent. The Bonferroni adjusted alpha level of 0.013 (0.05/4) was used to compare the misuse of school material resources across the various age groups of principals. The post hoc test results revealed significant differences across the various pairs of principal age groups regarding secondary school material capital misuse (Figure 1).

8.3 Sex and the Misuse of School Material Capital

The sex difference in principals' misuse of school material capital in secondary schools was also examined. The null hypothesis was that male and female principals had no significant difference in misusing school material capital. The results of the analysis, using the Mann–Whitney U test, revealed no significant difference between male (n = 559, mean rank = 334.34) and female (n = 108, mean rank = 332.23) principals in the misuse of school material capital (U = 29994.50, p = 0.917). However, using the total mean rank of 333.29 as the criterion, it was discovered that male principals misused school material capital to a high extent. However, the rate of misuse among female principals was low. This result is further illustrated graphically in Figure 2. Thus, the null hypothesis was retained.

8.4 Professional Qualification and the Misuse of School Material Capital

The extent to which principals with different professional qualifications misused school material capital in secondary schools was explored using the Kruskal–Wallis test. The null hypothesis states no significant difference in the misuse of

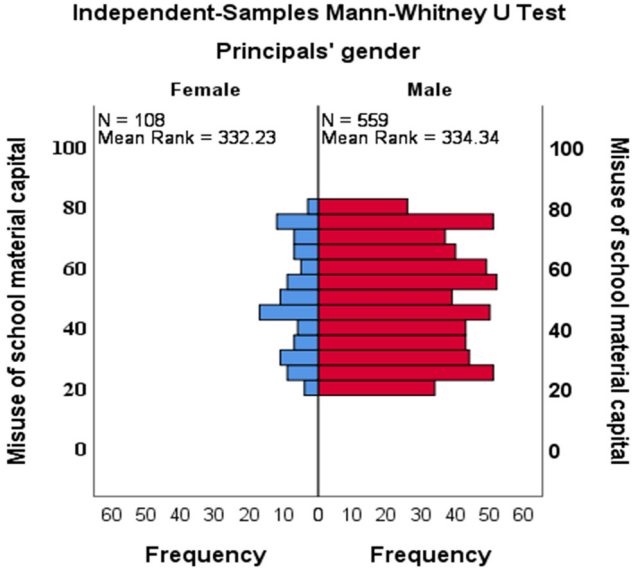

Figure 2: Misuse of school material capital by male and female principals.

school material capital among principals with varied professional qualifications in secondary schools. The analysis revealed a significant difference in the misuse of school material capital among principals with different professional qualifications, H(3) = 263.57, p = 0.00. Principals with nonprofessional qualifications (n = 171, Md = 70.00, mean rank = 476.58) wasted more school material capital than those with postgraduate diploma in education (n = 158, Md = 59.50, mean rank = 416.87), those with master's in education degree (n = 158, Md = 45.00, mean rank = 283.10), and those with bachelor's of education degree (n = 180, Md = 31.00, mean rank = 170.49). Taking the total mean rank of 336.76 as the criterion, the rate of misuse of school material capital by principals with PGDE and other academic qualifications (such as HND, BSc., BA, and MSc) was high; in contrast, the rate of misuse of principals with BEd and MEd professional qualifications was low. This result is further illustrated in Figure 3. A Bonferroni-corrected post hoc test was performed at 0.013 (0.05/4) to compare the misuse of school material capital across principals' professional qualification groups. The post hoc test revealed significant adjusted differences in the misuse of school material capital across pairwise comparisons of principals' professional qualifications groups.

8.5 Years of Experience and the Misuse of School Material Capital

The extent to which principals with different years of experience misused school material capital was explored using the Kruskal–Wallis test. The null hypothesis was that principals of different years of work experience do not differ significantly in terms of the misuse of school material capital in secondary school. At the 0.05 level of significance, the results of the analysis did not support the null hypothesis, as there was a significant difference in the median rate of school material misuse based on principals' years of work experience, H(2) = 223, p = 0.00. More specifically, principals with less than 15 years of work experience (n = 171, Md = 69.00, mean rank = 472.37) misused school material capital more than did those with 15–24 years of work experience (n = 172, Md = 59.00, mean rank = 407.99) or 25 years of experience and above (n = 324, Md = 37.00, mean rank = 221.69). The results further indicated that principals with less than 15 years of experience, followed by those with 15 to 24 years of experience, misused school material capital the most. The lowest misuse rate of school material capital is traceable to principals with 25 years of experience or more (this is illustrated pictorially in Figure 4). Relying on the grand mean rank of 367.35 as the benchmark, it is inferred that the misuse rate was high for principals with less than 15 years of experience and those with 15 to 24 years of experience. However, the percentage of principals with 25 years of experience or above misuse of school material capital is low, following the same benchmark. The Bonferroni adjusted post hoc test was performed at the 0.017 (.05/3) alpha level to compare principals' three work experience groups in misusing school material capital. The results revealed significantly adjusted differences in the misuse of school material resources among the multiple pairwise comparisons, suggesting that the observed differences were not due to chance.

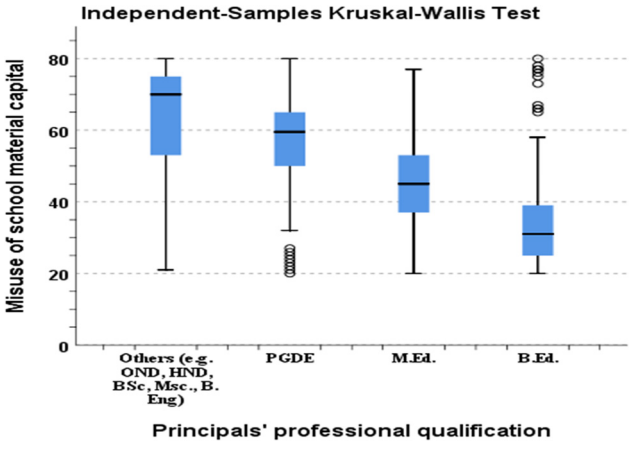

Figure 3: Misuse of school material capital by principals' professional qualifications.

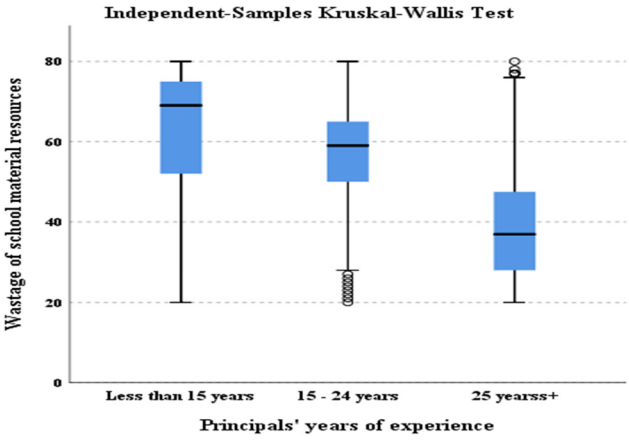

Figure 4: Misuse of school material capital based on principals' years of experience.

8.6 Interactive Effects of the Four Demographic Variables on the Misuse of School Material Capital

The results of the interactive effects among the demographic qualities of principals on the misuse of school material capital were performed using a series of two-way analyses of variance. Table 3 reveals a significant main effect of professional qualifications on principals' misuse of school material capital in secondary schools. The interaction effects of sex and age, age and professional qualification, age and years of experience, sex and professional qualification, sex and years of experience, and professional qualification and years of experience are not statistically significant at the 0.05 alpha level, with 1 and 649 degrees of freedom, respectively, per interaction. All the calculated effect sizes of the interaction terms are also not substantial.

9 Discussion of Findings

This study assessed principals' demographic qualities as factors affecting secondary school material capital misuse. The study collected data from Cross River State, Nigeria, school managers. This study established differences in the rate at which school material capital is misused based on principals' age. Younger principals misuse school material capital more than older principals, as the trend of misuse decreases with the increasing age of principals. This finding implies that younger principals are better managers of school material capital than younger principals. This finding may be attributed to principals' years of experience, as seasoned principals are more likely to be older than inexperienced principals. This finding contributes to the existing literature by emphasising the significance of principals' age in managing school resources. While the previous research has touched upon the importance of principals' characteristics in school leadership, this study explored the specific impact of age on material capital misuse. By demonstrating a trend where older principals, presumably more experienced, exhibit better management of school resources, the study underscores the importance of considering demographic factors in leadership appointments. This finding supports Odigwe and Owan's (2020) arguments that older principals are more often experienced than younger school administrators are, and vice versa. Contrary to the findings of this study, one report indicated that principals in their fifties had greater managerial skills than those above their fifties, explaining that people tend to gradually disengage in active work when they are older (Campos-García & Zúñiga-Vicente, 2020). However, these findings support that older principals (61 years or older) maintain better leadership behaviour than younger principals (Campos-García & Zúñiga-Vicente, 2022; Tu, 2019). Therefore, it is recommended that appointments to principals in secondary schools be based on teachers' age; older and experienced teachers should be given the mantle of leadership in secondary schools, with younger and inexperienced teachers placed under their mentorship.

While the disparity is not statistically significant, this research showed that male principals waste more school

Table 3: Interactive effects of demographic qualities on the misuse of school material capital

Source	Type III SS	Df	MS	*F*	*p*	η_p^2
Corrected model	86031.35[a]	17	5060.67	26.79	8.78×10^{-64}	0.41
Intercept	123822.38	1	123822.38	655.37	1.86×10^{-100}	0.50
Age (A)	857.16	2	428.58	2.27	0.10	0.01
Sex (S)	0.22	1	0.22	0.00	0.97	0.00
Professional qualification (PQ)	1466.86	3	488.95	2.59	0.05	0.01
Years of experience (YE)	66.81	2	33.41	0.18	0.84	0.00
S * A	270.90	1	270.90	1.43	0.23	0.00
A * PQ	63.48	1	63.48	0.34	0.56	0.00
A * YE	371.92	1	371.92	1.97	0.16	0.00
S * PQ	170.43	1	170.43	0.90	0.34	0.00
S * YE	277.89	1	277.89	1.47	0.23	0.00
PQ * YE	287.11	1	287.11	1.52	0.22	0.00
Error	122619.27	649	188.94			
Total	1837774.00	667				
Corrected total	208650.62	666				

R^2 = 0.412 (adjusted R^2 = 0.397); S = sex; A = age; YE = years of experience; PQ = professional qualification.

material resources than their female colleagues. This finding means that there is no major sex difference in male and female administrators' misuse of school resources. This finding may be attributed to the individual differences between male and female secondary school principals. It is conceivable to encounter principals within both male and female categories who exhibit varying degrees of attentiveness in managing the material resources of their schools. Although females appeared to be better managers of school material capital, the observed mean difference did not reach statistical significance. One value this study brings to the existing literature is its exploration of gender disparities in material resource misuse among secondary school principals. While the previous research has examined various aspects of gender in educational leadership, such as leadership styles and career progression, this study specifically focuses on resource management behaviours. By revealing that there is no major sex difference in material resource misuse, the study challenges common stereotypes or assumptions about gender and leadership. Individual differences between male and female principals may outweigh any inherent gender-based tendencies regarding resource management. Noticeably, these findings confirm the results of a study that showed that male and female representatives did not significantly differ in their administrative capabilities in the administration of secondary schools (Zalata, Ntim, Alsohagy, & Malagila, 2022). Furthermore, in alignment with this study, other studies have revealed that sex does not significantly affect principals' leadership behaviour, appraisal duties, discipline implementation, strategic decision-making, or Internet tool utilisation for school management (Abuga, 2014; Arop, 2018; Campos-García & Zúñiga-Vicente, 2020; Mukinya, 2013; Tu, 2019; Uko et al., 2020). Nonetheless, the research has revealed sex disparities in principals' effectiveness, relying on authority sources and fostering instructional leadership through principal–teacher partnerships (Shaked et al., 2018). Although the variables and context are not the same between the present study and that of Shaked et al., there is a need for further research on sex and the misuse of school material capital in secondary schools. This study calls for further research considering the discrepancies in the findings of different studies relating to sex and other dependent administrative variables.

This study also revealed significant differences in the percentage of principals with different professional qualifications misusing school material capital in secondary schools. The highest misuse rate was found among nonprofessional principals in the teaching profession (such as holders of BA, BSc, and MSc). They are considered nonprofessionals because their course of study is unrelated to education. The high rate of misuse in this category and the PDGE category could be attributed to the lack of knowledge and techniques in educational management generally and in handling school facilities specifically. In addition, principals with BEd and MEd degrees may have demonstrated better leadership of school material capital due to the possession of fundamental or advanced skills in managing human and material wealth in schools, as may have been acquired during school training. This aspect of the research enriches existing scholarship by accentuating the necessity of assessing the pertinence of educational background to the realm of education administration. While prior investigations have scrutinised the impact of principals' qualifications on leadership efficacy, this study penetrates deeper into the specific realm of material resource management, illuminating a hitherto less explored domain. This position is further justified through a study, indicating that principals with professional qualifications such as NCE, BEd, and MEd performed better in instructional leadership than those without BA/BSc (Walson et al., 2020). More recently, it was discovered that principals' level of education has a modest effect on their expertise in handling the procurement process in schools (Kirianki, 2017) and the incorporation of ICT into school management (Mutisya et al., 2017).

Ogunode's (2023) research also showed that highly qualified managers fulfil their positions better than nonprofessionals. This finding reinforced the findings of Phytanza and Burhaein (2020), who indicated that teachers who have completed a degree in education are more skilled in performance than those who have not. In contrast to this study's findings, a review found no substantial association between the concept of the application of quality assurance principles and institutional efficacy, which was dependent on the professional credentials of the principals (Momoh & Osagiobare, 2015). Similarly, the findings of another survey showed an insignificant association between principals' professional credentials and principals' managerial expertise (Mohammed et al., 2020).

It was further revealed in this aspect of this study that the misuse of school material capital decreased as the level of principals' years of experience increased. This finding implies that more seasoned principals are less likely to waste school material capital than less experienced and inexperienced principals are. This finding contributes significantly to the discourse on educational leadership and resource management by underscoring the pivotal role of experience in mitigating wastage and enhancing efficiency in school administration. The implication that more seasoned principals exhibit lower rates of material capital misuse aligns with theoretical propositions positing that experience fosters the development of practical skills,

strategic decision-making abilities, and a deeper understanding of organisational dynamics. Consequently, these seasoned leaders are better equipped to steward resources effectively, maximising their utility for educational objectives. This revelation contributes significantly to the discourse on educational leadership and resource management by underscoring the pivotal role of experience in mitigating wastage and enhancing efficiency in school administration. The implication that more seasoned principals exhibit lower rates of material capital misuse aligns with theoretical propositions positing that experience fosters the development of practical skills, strategic decision-making abilities, and a deeper understanding of organisational dynamics. Consequently, these seasoned leaders are better equipped to steward resources effectively, maximising their utility for educational objectives.

This result may be attributed to the high mastery and administrative competence that experienced principals possess over their less experienced counterparts. It has been confirmed that seasoned managers work from a broader, more advanced knowledge base because they have detailed skills and strategies for the efficient administration, counselling, supervision, and assessment of their teachers (Graham et al., 2020). This finding aligns with the popular African proverb, "*New brooms sweep clean, but old ones know the corners.*" In addition, some studies have widely acknowledged principals' years of experience as a significant factor affecting the extent of their administrative effectiveness (Lien et al., 2023; Mukinya, 2013). Furthermore, teachers regard better-trained and more seasoned principals positively (Amels, Krüger, Suhre, & van Veen, 2020; Virtanen, De Bloom, & Kinnunen, 2020). In 2017, Kirianki found that the experience of principals influences their expertise in procurement and that managers use their knowledge, insight, and expertise to enhance schools' options to acquire properly. The outcome of another study showed that the years of experience of principals had a major impact on their implementation of instruction in public high schools (Arop, 2018). It was expected that more experienced managers would be less information driven than less experienced directors are; the more likely administrators are to use aptitude in their tasks, the more educators put resources into the systems, and professional managers appear to improve teacher buy-in at the school level (Yoon, 2016). However, Feyisa et al. (2016) indicated that principals' experience does not significantly correlate with their leadership effectiveness. Feyisa et al. tallied with the outcome of another study, which explained that principals with fewer years of experience demonstrated higher mean ratings of their leadership behaviour. However, the observed differences were not significant (Tu, 2019). While a study found no meaningful association between demographic characteristics of job experiences and collective leadership and learning, the context of attitudes and values was related (Jeffers, 2013).

10 Practical Implications of the Study

The findings of this study carry some practical implications that can inform decision-making processes related to the recruitment, promotion, and professional development of principals in secondary schools. Firstly, educational policymakers and governing bodies responsible for appointing school leaders should consider integrating the identified demographic qualities – age, professional qualifications, and years of experience – into their recruitment and promotion policies. Priorities should be given to candidates with advanced age, extensive experience, and relevant professional educational qualifications. These considerations will enable institutions to enhance the likelihood of selecting principals more adept at efficiently managing school material capital.

Secondly, educational institutions should invest in targeted professional development initiatives to enhance the managerial competencies of aspiring and novice principals, particularly in resource management. These initiatives could include mentorship programmes, leadership training workshops, and ongoing support networks designed to cultivate the skills and expertise necessary for effective leadership in educational settings. Furthermore, school governing bodies should establish robust performance evaluation systems that assess principals' effectiveness in resource management, considering their demographic qualities. By implementing accountability measures that monitor principals' performance in this regard, schools can identify areas for improvement and provide targeted support to enhance their capabilities in managing school material capital effectively. In addition, educational institutions should identify and groom potential successors who possess the desired demographic qualities, ensuring the sustainability of effective leadership practices in secondary schools.

11 Limitations of the Study

This study provides evidence of the interplay between the demographic qualities of principals and the misuse of school material capital in secondary educational settings.

However, the study has several limitations that merit consideration and offer opportunities for future research endeavours. Firstly, the contextual specificity of the study to Cross River State, Nigeria, prompts caution regarding the generalizability of the findings to broader geographical and sociocultural contexts. Future research could address this limitation by conducting comparative analyses across different regions or countries to enhance the external validity of the findings and identify context-specific findings.

Secondly, the study's use of self-report measures to assess principals' demographic qualities and material capital misuse raises concerns about the respondents accurately providing the actual information. Besides, there could have been some form of response bias due to social desirability. Future research could employ methodological triangulation, integrating multiple data collection methods, including observational or objective measures, to address this limitation. Moreover, the study's cross-sectional design limits establishing causal relationships between principals' demographic qualities and material capital misuse. Future research could adopt longitudinal designs to address this limitation to track the relationship over time.

Finally, the study's focus on principals' demographic qualities overlooks other potential factors that may influence material capital misuse, such as organisational culture, institutional policies, and external pressures. Besides, it was beyond the scope of this study to assess whether the misuse of school material capital varied with the leadership styles or pedagogic approaches adopted by principals. Future studies should consider these aspects as potential determinants of material capital misuse in secondary educational settings.

12 Conclusion

Based on the findings of this study, it was concluded that some demographic qualities of principals influence the misuse of school material capital in secondary schools. The qualities of principals, such as age, professional qualification, and years of experience, are important in determining the extent to which school material capital is misused in secondary schools. However, the sex of principals does not influence the misuse of school material capital in secondary schools, although there are negligible differences in the mean misuse of school material capital between male and female principals. In conclusion, older principals who are more experienced and possess professional educational qualifications are more efficient at managing school material capital than young, inexperienced, nonprofessional principals. Therefore, for future administrative effectiveness and quality service delivery, it is recommended to promote managerial positions in secondary schools based on these factors.

Funding information: This study did not receive any external funding.

Author contributions: V. J. Owan: conceptualisation, original draft writing, methodology, data analysis, and visualisation; R. O. Osim: supervision, data collection, project administration, and software; J. U. Liwhuliwhe: literature review during revision, updating obsolete references, and data collection; G. E. Edoho: data collection, literature review during revision, and editing; D. B. Onabe: data collection, rewriting some sections during revision for clarity, and editing; I. O. Ibor: data collection during validation, response to reviewer comments, and editing; M. V. Owan: data collection, response to reviewer comments, and language editing.

Conflict of interest: The authors state no conflict of interest.

Data availability statement: The data associated with this study is available on reasonable request from the corresponding author.

References

Abuga, A. B. (2014). Influence of principals' characteristics on the integration of information technology in the management of human resources in Nyamira County, Kenya. (Master's thesis). University of Nairobi, Nairobi, Kenya. http://hdl.handle.net/11295/75953.

Adams, J., Khan, H. T., Raeside, R., & White, D. (2007). *Research methods for graduate business and social science students*. New Delhi, India: Response Books.

Ali, M., Li, Z., Khan, S., Shah, S. J., & Ullah, R. (2021). Linking humble leadership and project success: The moderating role of top management support with mediation of team-building. *International Journal of Managing Projects in Business*, *14*(3), 545–562.

Amels, J., Krüger, M. L., Suhre, C. J., & van Veen, K. (2020). The effects of distributed leadership and inquiry-based work on primary teachers' capacity to change: Testing a model. *School Effectiveness and School Improvement*, *31*(3), 468–485.

Arop, F. O. (2018). Principals' characteristics and their administration of discipline in public secondary schools in Ikom Education Zone, Cross River State, Nigeria. *Prestige Journal of Counselling Psychology*, *1*(1), 71–78. https://bit.ly/381r4b8.

Arop, F. O., Owan, V. J., & Agunwa, J. N. (2019). Teaching personnel management and attitude to work in secondary schools of Calabar Education Zone of Cross River State, Nigeria. *Prestige Journal of Education*, *2*(1), 62–73. https://tinyurl.com/y65wqjt4.

Bassey, B. A., Owan, V. J., & Eze, E. A. (2019). Nexus between students', teachers' and school system effectiveness: Construction and

factorial validity of a measuring instrument. *British Journal of Education*, *7*(7), 62–75. https://tinyurl.com/y3hr7jd3.

Brauckmann-Sajkiewicz, S., & Pashiardis, P. (2022). Entrepreneurial leadership in schools: Linking creativity with accountability. *International Journal of Leadership in Education*, *25*(5), 787–801.

Campos-García, I., & Zúñiga-Vicente, J. A. (2020). Strategic decision-making in secondary schools: The impact of a principal's demographic profile. *Leadership and Policy in Schools*, *20*(3), 543–564. doi: 10.1080/15700763.2020.1802653.

Campos-García, I., & Zúñiga-Vicente, J. Á. (2022). Strategic decision-making in secondary schools: The impact of a principal's demographic profile. *Leadership and Policy in Schools*, *21*(3), 543–564.

Ekpenyong, J. A., Owan, V. J., Ogar, J. O., & Undie, J. A. (2022). Hierarchical linear modelling of educational outcomes in secondary schools: What matters – teachers' or administrators' input? *Cogent Education*, *9*(1), Article ID 2133491. doi: 10.1080/2331186X.2022.2133491.

Feyisa, D., Ferede, B., & Amsale, F. (2016). Principal's perceived leadership effectiveness and its relationship with academic achievement among students in secondary school: The Ethiopian experience. *Educational Research and Reviews*, *11*(12), 1129–1137. doi: 10.5897/ERR2015.2617.

Gebczynski, M., & Kutsyuruba, B. (2022). Veteran teachers' perceptions of principals' leadership influence on school culture. *International Journal for Leadership in Learning*, *22*(1), 265–304.

Graham, L. J., White, S. L., Cologon, K., & Pianta, R. C. (2020). Do teachers' years of experience make a difference in the quality of teaching? *Teaching and Teacher Education*, *96*, 103190.

Gümüş, S., Şükrü Bellibaş, M., Şen, S., & Hallinger, P. (2024). Finding the missing link: Do principal qualifications make a difference in student achievement? *Educational Management Administration & Leadership*, *52*(1), 28–51.

Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers*, *3*, 275–285.

Herbst, T. H. (2020). Gender differences in self-perception accuracy: The confidence gap and women leaders' underrepresentation in academia. *SA Journal of Industrial Psychology*, *46*(1), 1–8.

Jang, S. T., & Alexander, N. A. (2022). Black women principals in American secondary schools: Quantitative evidence of the link between their leadership and student achievement. *Educational Administration Quarterly*, *58*(3), 450–486.

Jayesimi, G. (2020). Adequacy of facilities for the implementation of the universal basic education scheme in public primary schools in Ogun State, Nigeria: An appraisal. *KIU Journal of Social Sciences*, *5*(4), 17–23.

Jeffers, M. P. (2013). *Exploring collaborative culture and leadership in large high schools*. (Doctoral dissertation). University of Missouri-Columbia, Columbia, United States. doi: 10.32469/10355/37784.

Kalkan, Ü., Altınay Aksal, F., Altınay Gazi, Z., Atasoy, R., & Dağlı, G. (2020). The relationship between school administrators' leadership styles, school culture, and organisational image. *Sage Open*, *10*(1), 2158244020902081.

Kandade, K., Samara, G., Parada, M. J., & Dawson, A. (2021). From family successors to successful business leaders: A qualitative study of how high-quality relationships develop in family businesses. *Journal of Family Business Strategy*, *12*(2), 100334.

Karakose, T., Yirci, R., & Papadakis, S. (2021). Exploring the interrelationship between covid-19 phobia, work–family conflict, family–work conflict, and life satisfaction among school administrators for advancing sustainable management. *Sustainability*, *13*(15), 8654.

Kirianki, B. K. (2017). *Principals' characteristics influencing implementation of procurement practices in public secondary schools in Embakasi Sub-County, Nairobi County*. (Master's thesis). University of Nairobi, Nairobi, Kenya. http://hdl.handle.net/11295/102893.

Kothari, C. R. (2004). *Research methodology: Methods and techniques*. Delhi, India: New Age International.

Lien, C. M., Khan, S., & Eid, J. (2023). School principals' experiences and learning from the Covid-19 pandemic in Norway. *Scandinavian Journal of Educational Research*, *67*(5), 775–790.

Madukwe, E. C., Owan, V. J., & Nwannunu, B. I. (2019). Administrative networking strategies and principals' supervisory effectiveness in secondary schools in Cross River State, Nigeria. *British Journal of Education*, *7*(4), 39–48. doi: 10.5281/zenodo.4458671. https://bit.ly/2Krep9r.

Martínez, M. M., Molina-López, M. M., & de Cabo, R. M. (2020). Explaining the gender gap in school principalship: A tale of two sides. *Educational Management Administration & Leadership*, *47*(2), 291–309. doi: 10.1177/1741143220918258.

Mbon, U. F., Omorobi, G. O., Owan, V. J., & Ekpenyong, J. A. (2019). Analysis of the quality of educational resources and effective instructional service delivery in Nigerian Universities. *International Journal of Education and Evaluation*, *5*(7), 25–34. doi: 10.5281/zenodo.4458688. https://bit.ly/2GEY3IG.

Mbon, U. F., Ukpabio, G. E., Ekanem, E. E., Okon, J. E., Uko, E. S., Ngaji, M. N., & Okon, E. E. (2020). Wastage of school material resources and secondary school system effectiveness: Evidence from a survey in Nigeria. *Humanities and Social Sciences Letters*, *8*(3), 264–279. doi: 10.18488/journal.73.2020.83.264.279.

McHenry-Sorber, E., Campbell, M. P., & Sutherland, D. H. (2023). "If I ever leave, I have a list of people that are going with me:" Principals' understandings of and responses to place influences on teacher staffing in West Virginia. *Educational Administration Quarterly*, *59*(2), 432–464.

Mohammed, M. O. B., EdU, A. O., & Etoh, L. C. (2020). Principals' administrative skills: A predictor of students' academic performance in Lagos State, Nigeria. *Journal of Research in Educational and Business Studies*, *5*(1), 186–203. https://bit.ly/2JZqHG9.

Momoh, U., & Osagiobare, E. O. (2015). Implementation of quality assurance standards and principals' administrative effectiveness in Public Secondary Schools in Edo and Delta States. *World Journal of Education*, *5*(3), 107–114. doi: 10.5430/wje.v5n3p107.

Mukinya, R. M. (2013). *Aspects influencing principals' implementation of performance appraisal among secondary school teachers in Matungulu District, Machakos County - Kenya*. (Master's thesis). University of Nairobi, Nairobi, Kenya. https://bit.ly/3oTfUMF.

Mutisya, A. M., Mulwa, D. M., & Mwania, J. M. (2017). The influence of principals' related factors on ICT integration in the management of public secondary schools in Kitui County, Kenya. *Journal of Educational Policy and Entrepreneurial Research*, *4*(1), 13–24. https://bit.ly/2JZfYLT.

Odigwe, F. N., & Owan, V. J. (2020). Academic staff personal variables and utilisation of ICT resources for research, teaching and records management in higher education. *Proceedings of the 8th Annual European Conference on Education (ECE, 2020)* (pp. 107–123). doi: 10.22492/issn.2188-1162.2020.11. https://bit.ly/2GG36II.

Offem, O. O. (2021). Assessment of availability, adequacy and utilisation of learning facilities for teaching entrepreneurship education in secondary schools in Cross River State. *UNIZIK Journal of Educational Research and Policy Studies*, *5*, 33–43.

Ogunode, N. J. (2023). Appointment of non-educationist as head of educational institutions (ministries, agencies and commissions) and implications for educational administration in Nigeria. *Best Journal of Innovation in Science, Research and Development*, *2*(2), 61–68.

Okwor, P. C. (2012). *Relationship between principals' demographic characteristics and organisational effectiveness in secondary schools of Kogi State*. (Unpublished master's thesis). University of Nigeria, Nsukka.

Omrani, A., Wakefield-Scurr, J., Smith, J., & Brown, N. (2019). Survey development for adolescents aged 11–16 years: A developmental science-based guide. *Adolescent Research Review*, *4*, 329–340.

Onubuleze, F. K. (2018). An evaluation of the relationship between principals' demographic factors and their performance in the task areas of management of secondary education in Nsukka Education Zone. *Journal of Education and Practice*, *9*(18), 39–45. https://bit.ly/37fXHms.

Owan, V. J. (2018). Management of educational support services and attainment of universal basic education goals in primary schools in Cross River State. *Humanities and Social Sciences Letters*, *6*(4), 203–210. doi: 10.18488/journal.73.2018.64.203.210.

Owan, V. J., Asuquo, M. E., & Etudor-Eyo, E. (2022). Leadership styles, public relation skills and School-community collaboration: A quantitative analysis of the perception of stakeholders. *International Journal of Leadership in Education*, 1–23. doi: 10.1080/13603124.2022.2045627.

Owan, V. J., Ekpenyong, J. A., & Asuquo, M. E. (2021). A structural equation model of principals' communication patterns, funds management and school-community relationship. *Journal of Pedagogical Sociology and Psychology*, *3*(1), 1–18. doi: 10.33902/JPSP.2020364435.

Owan, V. J., Obla, M. E., Asuquo, M. E., Owan, M. V., Okenjom, G. P., Undie, S. B., … Udeh, K. V. (2023). Students' awareness, willingness and utilisation of Facebook for research data collection: Multigroup analysis with age and gender as control variables. *Journal of Pedagogical Research*, *7*(4), 369–399. doi: 10.33902/JPR.202322235.

Owan, V. J., Odigwe, F. N., Okon, A. E., Duruamaku-dim, J. U., Ubi, I. O., Emanghe, E. E., … Bassey, B. A. (2022). Contributions of placement, retraining and motivation to teachers' job commitment: Structural equation modelling of the linkages. *Heliyon*, *8*(4), Article ID e09334. doi: 10.1016/j.heliyon.2022.e09334.

Peimanpak, F., Abdollahi, A., & Hosseinian, S. (2023). The psychometrics of the Persian version of the perfectionistic self-presentation scale–junior form. *Brain and Behavior*, *13*(7), Article ID e3074.

Petters, J. S., Owan, V. J., Okpa, O. E., Idika, D. O., Ojini, R. A., Ntamu, B. A., … Essien, V. E. (2024). Predicting users' behavior: Gender and age as interactive antecedents of students' Facebook use for research data collection. *Online Journal of Communication and Media Technologies*, *14*(1), e202406. doi: 10.30935/ojcmt/14104.

Phytanza, D. T. P., & Burhaein, E. (2020). The effects of tenure, teacher certification, and work motivation on special needs teacher performance. *Universal Journal of Educational Research*, *8*(9), 4348–4356.

Rodrigues, I. B., Adachi, J. D., Beattie, K. A., & MacDermid, J. C. (2017). Development and validation of a new tool to measure the facilitators, barriers and preferences to exercise in people with osteoporosis. *BMC Musculoskeletal Disorders*, *18*, 540. doi: 10.1186/s12891-017-1914-5.

Saleem, A., Aslam, S., Yin, H. B., & Rao, C. (2020). Principal leadership styles and teacher job performance: Viewpoint of middle management. *Sustainability*, *12*(8), 3390.

Schanze, J. L. (2023). Response behavior and quality of survey data: Comparing elderly respondents in institutions and private households. *Sociological Methods & Research*, *52*(3), 1519–1555.

Schiuma, G., Schettini, E., Santarsiero, F., & Carlucci, D. (2022). The transformative leadership compass: Six competencies for digital transformation entrepreneurship. *International Journal of Entrepreneurial Behavior & Research*, *28*(5), 1273–1291.

Shaked, H., Glanz, J., & Gross, Z. (2018). Gender differences in instructional leadership: How male and female principals perform their instructional leadership role. *School Leadership & Management*, *38*(4), 417–434. doi: 10.1080/13632434.2018.1427569.

Shanka, B. O., & Adebola, A. (2021). Resource management and staff productivity in Nigeria: Focus on tertiary institutions of learning. *African Scholar Journal of Humanities and Social Sciences (JHSS-6)*, *25*(6), 348–366.

Shi, J., Mo, X., & Sun, Z. (2012). Content validity index in scale development. *Zhong nan da xue xue bao. Yi xue ban (Journal of Central South University Medical Sciences)*, *37*(2), 152–155. doi: 10.3969/j.issn.1672-7347.2012.02.007.

Shrotryia, V. K., & Dhanda, U. (2019). Content validity of assessment instrument for employee engagement. *SAGE Open*, *9*(1), 2158244018821751. doi: 10.1177/2158244018821751.

Sullivan, S. E., & Al Ariss, A. (2021). Making sense of different perspectives on career transitions: A review and agenda for future research. *Human Resource Management Review*, *31*(1), 100727.

Tonich, T. (2021). The role of principals' leadership abilities in improving school performance through the school culture. *Journal of Social Studies Education Research*, *12*(1), 47–75.

Tu, H. (2019). *The relationship between principals' ways of making meaning and their knowing-doing gap is related to Marzano's principal leadership responsibilities*. (Doctoral thesis). The Sage Colleges, New York, US. https://bit.ly/3a8cFwK.

Uko, E. S., & Ayuk, A. A. (2014). Poverty: The malaise that maligns the attainment of educational goals by the African child. The Nigerian experience. *International Journal of Education and Research*, *2*(7), 433–446. https://bit.ly/3mgsVOv.

Uko, E. S., Mbon, U. F., Okon, J. E., Ebuara, V. O., & Arop, F. O. (2020). Principals characteristics and the utilisation of internet tools for school management: A survey of secondary school managers' perceptions. *Journal of the Social Sciences*, *48*(3), 2559–2570. https://bit.ly/34937h1.

Usman, Y. D. (2016). Educational resources: An integral component for effective school administration in Nigeria. *Research on Humanities and Social Sciences*, *6*(13), 27–37. https://bit.ly/3gRJrU8.

Virtanen, A., De Bloom, J., & Kinnunen, U. (2020). Relationships between recovery experiences and well-being among younger and older teachers. *International Archives of Occupational and Environmental Health*, *93*, 213–227.

Walson, O. B. A., Hart, L. A., Ajikere, N. A., & Kasi, N. A. (2020). Demographic and personality correlates of principals' performance in decision making in the management of secondary schools in South-South, Nigeria. *Management*, *2*(4), 754–772.

Yoon, S. Y. (2016). Principals' data-driven practice and its influences on teacher buy-in and student achievement in comprehensive school reform models. *Leadership and Policy in Schools*, *15*(4), 500–523. doi: 10.1080/15700763.2016.1181187.

Zalata, A. M., Ntim, C. G., Alsohagy, M. H., & Malagila, J. (2022). Gender diversity and earnings management: The case of female directors with financial background. *Review of Quantitative Finance and Accounting*, *58*(1), 101–136.